What is claimed is:

1. A method for accessing data in a file stored on at least one of a plurality of removable data storage media in an automated storage library such that peripheral storage drives in the library are transparent to a host processor, the data storage media storing a plurality of 50 volumes, one of the volumes including the file to be accessed, the automated storage library including a plurality of internal peripheral storage drives, a plurality of data storage media storage cells, automated means for transferring a data storage medium between the 55 plurality of internal peripheral storage drives and the plurality of storage cells, and a controller coupled to each of the plurality of internal peripheral storage drives, the automated means, and the host processor, the controller storing the location within the library of 60 each of the plurality of volumes, the method comprising the machine executed steps of:

the controller receiving a request from a host processor to access a file on a volume in the library, the request specifying the file, the volume, and the 65 library;

the controller determining the location within the library of the volume specified in the request;

the controller allocating at least one of the internal peripheral storage drives;

the automated means transferring the volume specified in the request to said at least one of the internal peripheral storage drives which has been allocated and mounting said volume therein; and

the host processor, unaware in which of the internal peripheral storage drives that the volume specified in the request has been mounted read/write accessing data in the file specified in the request via communications routed to said at least one of the internal peripheral storage drives by the controller.

2. The method of claim 1 wherein the request is in a format used by the host processor to access a file on a data storage medium mounted in a peripheral storage drive coupled to the host processor, with a specification of a peripheral storage drive coupled to the host processor replaced with a specification of the library and a specification of a subdirectory in a peripheral storage drive coupled to the host processor replaced with a specification of a volume in the library.

3. An automated storage library capable of allowing access to data in a file stored on at least one of a plurality of removable data storage media therein such that peripheral storage drives in the library are transparent to a host processor, the data storage media storing a plurality of volumes, one of the volumes including the file to be accessed, the automated storage library comprising:

a plurality of internal peripheral storage drives;

a plurality of storage cells;

automated means for transferring a data storage medium between the plurality of internal peripheral storage drives and the plurality of storage cells; and

a controller coupled to each of the plurality of internal peripheral storage drives, the automated means, and the host processor, the controller storing the location within the library of each of the plurality of volumes, the controller including machine-executed means for:

receiving a request from the host processor to access a file on a volume in the library, the request specifying the file, the volume, and the library;

determining the location within the library of the volume specified in the request;

allocating at least one of the internal peripheral storage drives;

instructing the automated means to transfer the volume specified in the request to said at least one of the internal peripheral storage drives which has been allocated and to mount said volume therein; and

allowing the host processor, unaware in which of the internal peripheral storage drives that the volume specified in the request has been mounted to have read/write access to data in the file specified in the request by routing communications between the host processor and said at least one of the internal peripheral storage drives.

4. The automated storage library of claim 3 wherein the request is in a format used by the host processor to access a file on a data storage medium mounted in a peripheral storage drive coupled to the host processor, with a specification of a peripheral storage drive coupled to a host processor replaced with a specification of the library and a specification of a subdirectory in a peripheral storage drive coupled to the host processor replaced with a specification of a volume in the library.

* * * * *

1    <u>5.    In a data storage subsystem having an automated storage</u>

2    <u>library and a controller, said automated storage library</u>

3    <u>including a plurality of storage drives, a plurality of</u>

4    <u>storage cells, and an automated means for transferring at</u>

5    <u>least one of a plurality of removable data storage media</u>

6    <u>between said storage drives and said storage cells, each of</u>

7    <u>said removable data storage media storing a plurality of</u>

8    <u>volumes, each of said plurality of volumes including at</u>

9    <u>least one file, said controller coupled to each of said</u>

10   <u>storage drives, said automated means, and a host processor,</u>

11   <u>said controller storing a location within said automated</u>

12   <u>storage library for each of said plurality of volumes, a</u>

13   <u>method for accessing data from a selected file within said</u>

14   <u>automated storage library such that said storage drives are</u>

15   <u>transparent to said host processor, said method comprising</u>

16   <u>the machine executed steps of:</u>

17   <u>said controller receiving a request from said host</u>

18   <u>processor to access said selected file within said automated</u>

19   <u>storage library, said request identifying said selected</u>

20   <u>file, a specified volume, and said automated storage</u>

21   <u>library;</u>

22   <u>said controller determining the location within said</u>

23   <u>automated storage library of said specified volume;</u>

24   <u>said controller allocating at least one of said storage</u>

25   <u>drives;</u>

26    said automated means transferring said specified volume

27    to said at least one allocated storage drives, and mounting

28    said specified volume therein; and

29        said host processor, unaware in which of said storage

30    drives that said specified volume has been mounted,

31    read/write accessing data in said selected file via

32    communications routed to said at least one allocated storage

33    drives by said controller.


1    6.    The method of claim 5 wherein said request is in a

2    format used by the host processor to access a file on a data

3    storage medium mounted in a storage drive coupled to the

4    host processor, with a specification of a storage drive

5    coupled to the host processor replaced with a specification

6    of the library, and a specification of a subdirectory in a

7    storage drive coupled to the host processor replaced with a

8    specification of a volume in the library.


1    7.    A data storage subsystem coupled to a host processor,

2    said data storage subsystem comprising:

3        an automated storage library allowing access to data in

4    a file stored on one of a plurality of removable data

5    storage media such that peripheral storage drives in said

6    library are transparent to said host processor, said data

7    storage media storing a plurality of volumes, one of said

8    plurality of volumes including said file to be accessed,


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9     said automatic storage library comprising:

10             a plurality of peripheral storage drives;

11             a plurality of storage cells; and

12             an automated means for transferring at least one

13     of a said data storage media between said peripheral

14     storage drives and said storage cells; and

15     a controller coupled to each of said peripheral storage

16     drives, said automated means, and said host processor, said

17     controller storing a location within said library for each

18     of said plurality of volumes, said controller including

19     machine executed means for:

20             receiving a request from said host processor to

21     access a selected file within said library, said

22     request identifying said selected file, a specified

23     volume, and said library;

24             determining the location within said library of

25     said specified volume;

26             allocating at least one of said peripheral storage

27     drives;

28             instructing said automated means to transfer said

29     specified volume to said at least one allocated

30     peripheral storage drives, and mounting said specified

31     volume therein; and

32             allowing said host processor, unaware in which of

33     said peripheral storage drives that said specified

34     volume has been mounted, read/write access to data in

35      said selected file by routing communications to said at

36      least one allocated peripheral storage drive.


1      8.    The data storage subsystem of claim 7 wherein said

2      request is in a format used by the host processor to access

3      a file on a data storage medium mounted in a storage drive

4      coupled to the host processor, with a specification of a

5      storage drive coupled to the host processor replaced with a

6      specification of the library, and a specification of a

7      subdirectory in a storage drive coupled to the host

8      processor replaced with a specification of a volume in the

9      library.


9.    An article of manufacture for use in a data storage

subsystem having an automated storage library and a

controller, said data storage subsystem for accessing data

in a file on one of a plurality of volumes stored within

said library such that peripheral storage drives within said

6      library are transparent to a host processor coupled to said

7      data storage subsystem,

8      said article of manufacture comprising a computer

9      usable storage medium having a computer readable program

10      code embodied in said medium which may cause said controller

11      to:

12      store a location within a plurality of storage cells

13      for each of said plurality of volumes within said library;

14         receive a request from said host processor to access a

15 selected file within said library, said request identifying

16 said selected file, a specified volume, and said library;

17         determine the location within said library of said

18 specified volume;

19         allocate at least one of said peripheral storage drives

20 within said library, said controller coupled to each of said

21 peripheral storage drives;

22         instruct an automated means within said library to

23 transfer said specified volume from said location within

24 said plurality of storage cells to said at least one

25 allocated peripheral storage drives, and mounting said

26 specified volume therein; and

27         allow said host processor, unaware in which of said

28 peripheral storage drives that said specified volume has

29 been mounted, read/write access to data in said selected

30 file by routing communications to said at least one

31 allocated peripheral storage drive.